

Types of 800g Optical Modules



AI Overview

800G optical modules are available primarily in QSFP-DD and OSFP form factors, with options like DR8, PSM8, 2DR4, FR, and LR for varying distances and applications.

Form Factors

- QSFP-DD (Quad Small Form-Factor Pluggable Double Density):** Compact, backward compatible with QSFP+ and QSFP28, supports high port density, suitable for short- to medium-reach applications, and uses 8 channels with PAM4 modulation.
- OSFP (Octal Small Form-Factor Pluggable):** Larger module with higher thermal capacity (up to 25W TDP), ideal for high-performance deployments and easier future upgrades to 1.6T or 3.2T interfaces.

Key 800G Module Types

- DR8 (8-channel, 100G PAM4):** Short-reach, single-mode fiber, up to 500m, commonly used for intra-rack or adjacent-rack connections in data centers.
- PSM8 (8-channel CWDM):** Supports 100m transmission, suitable for long-distance single-mode fiber and fiber resource sharing.
- 2DR4:** Combines two 400G-DR4 links in one 800G transceiver, enabling 500m transmission without optical breakout cables, ideal for data center upgrades.
- FR (Fixed Reach) and LR (Long Reach):** Designed for longer-distance transmission, typically for campus or metro networks.
- SR8 (Short Reach, multimode):** Uses VCSEL technology, 850nm wavelength, 16 optical fibers, suitable for distances under 100m within data centers.

Applications

- Hyperscale data centers:** High-density, low-latency environments requiring massive throughput for AI, HPC, and cloud workloads.
- AI/ML clusters:** Reduces network latency and improves GPU training efficiency by providing higher bandwidth than 400G deployments.
- Data center interconnects:** Supports 800G-800G, 800G-400G, and 800G-100G links for flexible network scaling.

Considerations

- Single-channel rate:** 100G modules are easier to implement; 200G modules require advanced optical devices and gearbox conversion.
- Distance and fiber type:** Choose DR8, PSM8, or 2DR4 based on required reach and fiber availability.
- Thermal and power:** OSFP modules handle higher power dissipation, while QSFP-DD modules are more power-efficient.

Article Content

800G Client Optics in the Data Center

The next key development is 800G, and the industry is already gearing up to deploy this next generation of client optics in hyperscale data centers. Developments in three distinct areas are needed for 800G

AI Data Centers Drive Optical Transceiver Market Growth

Analysis of how AI and hyperscale data centers accelerate global optical transceiver adoption, including 400G/800G evolution, silicon photonics, CPO, and Link-PP integration for next

The Evolution of 400G, 800G, and 1.6T Optical Modules

With the rapid advancement of AI, HPC, and cloud computing, the demand for high-speed optical modules such as 400G, 800G, and even 1.6T is growing exponentially. This surge is driving

A Comprehensive Guide to 800G Optical Transceivers

An in-depth guide to 800G and OSFP transceivers, explaining form factors, core features, key advantages, application scenarios, FAQs, and their critical role in building high

Understanding 800G Optical Modules: Types, Applications, and

In this article, we will outline the various types of 800G optical modules and their applications, addressing some common questions to help you make an informed decision when selecting 800G

Demystifying 800G Transceiver: Types, Applications, and FAQs

In this article, we will provide an overview of the various types of 800G optical modules, discuss their applications, and address some FAQs to help you make a better choice when selecting

800G Optical Modules Analysis: Technical Architecture, Form

This article will comprehensively analyse the technical details and industrial value of 800G optical modules from the perspectives of technical classification, form factor differences, and...

A Comprehensive Guide to 800G DR4/DR8 Transceivers

This article provides a comprehensive guide of the technical features and diverse application of 800G DR4/DR8 modules, which are ideally suited for AI/HPC systems and data

Optical Modules in Intelligent Computing Scenarios

Huawei provides a full series of pluggable optical modules. A wide variety of modules give you flexible plug-and-play options for all types of interfaces.

Global 800G Optical Module Market Size, Share, Growth Analysis ...

Global 800G Optical Module Market Size By Product Type (Coherent Optical Modules, Non-Coherent Optical Modules), By Application (Telecommunications, Data Centers), By Form

Key Differences Of 100G, 400G, And 800G Explained

Its core function is to convert electrical signals into optical signals at the transmitting end and convert optical signals back to electrical signals at the

800G Optical Modules Explained: Standards, Types

We will explore the emergence, technical standards, packaging, types, and applications of 800G modules, and answer common questions to help you

Cisco OSFP 800G Transceiver Modules Data Sheet

The Cisco ® OSFP 800G transceiver modules provide 800 Gigabit Ethernet (GE), 2x 400GE, 4x 200GE, and 8x 100GE connectivity options, complying with the Octal Small Form Factor

Global AI Optical Transceiver Market to Reach US\$26 Billion in 2026 ...

This surge is driven not only by specification upgrades but also reflects a broader structural reshaping of the optical communications supply chain amid accelerating AI data center

OSFP vs QSFP-DD Comparison | 800G Optical Module Form Factors

Detailed analysis of OSFP and QSFP-DD form factors for 800G optical modules. Compare specifications, thermal management, backward compatibility, and choose the right solution

800G QSFP-DD Optical Module Market Revenue Forecast Driven

The 800G QSFP-DD Optical Module Market was valued at USD 1.43 Billion in 2025 and is projected to reach USD 8.52 Billion by 2035, growing at a CAGR of 19.5% from 2027 to 2035. Market

Know Your 800G Transceiver | Juniper Networks

An 800G transceiver uses multiple lanes of optical signals and advanced modulation techniques to achieve higher capacities. 800G transceivers employ multiplexing using multiple fibers.

Types of 800G Optical Transceiver Modules

In this article, we will provide an overview of various types of 800G optical transceiver modules to help you make better choices when selecting 800G optical transceiver modules.

OSFP Transceivers: High-Density Optical Connectivity from 400G to

As hyperscale data centers shift toward AI-optimized fabrics and ultra-high-bandwidth switching platforms, the OSFP (Octal Small Form-Factor Pluggable) form factor has become central

EML vs VCSEL vs CW Laser: Optical Transceiver Guide (2025)

Depends on the module type. Most 800G DR8 and 2xFR4 transceivers use EML lasers for their clean modulation over longer distances. But with the current EML shortage, more 800G

AI Data Center Optical Transceiver Module Market 2025–2030

The AI data center optical transceiver market is undergoing the most significant growth phase in its history, driven by the convergence of exponential AI workload expansion, the physics-imposed

800G Optical Transceiver Types Guide | PHILISUN

Explore 800G optical transceiver types like OSFP and QSFP-DD for AI and HPC networks. Understand 800G module technologies, deployment challenges, and how PHILISUN

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